

REMARKS

Applicants' representative is now Young & Thompson. A Revocation and Power of Attorney will be filed separately. It is requested that the below indicated attorney be contacted when the next Official Action is issued.

The application has been amended and is believed to be in condition for allowance.

Please amend the title of the invention to "PLASMA ~~DEVICE~~ METHOD WITH HIGH INPUT POWER". If this title is not acceptable, it is requested that an acceptable title be suggested.

Claim 35 has been cancelled and new claims 74-75 have been added in order to respond to the informality noted in claim 35. Withdrawal of this rejection is therefore solicited.

New claims 76-81 are based on claims 34 and 74-75.

Claims 34-35 were rejected as obvious over TOKUDA et al. 5,134,965 in view of KAMATA et al. 5,846,885.

Claim 34 recites "the plasma device carrying out plasma processing for the object to be treated, the power density of microwaves to be input being 1.2 W/cm² or more".

The Official Action acknowledges that TOKUDA does not disclose this feature. KAMATA is said, by the Official Action, to teach a plasma device carrying out plasma processing with a power density of microwaves to be input being 1.2 W/cm³ or more.

No specific location within KAMATA is identified for explicitly making this disclosure.

Column 8, lines 26-34 is identified as disclosing a microwave power of 800 watts. Column 13, lines 39-51 is identified as disclosing a plasma chamber 500mm in diameter and 200mm high. From this information, the Official Action concludes that "Kamata et al teach the plasma chamber comprising 500mm diameter and 200 mm high. Note that the wattage /cm³ for 800 watts input does exceed that which is instantly claimed."

The Official Action does not explain how this information supports the conclusion. Further, it appears that the 800 watts mentioned in column 8 and the chamber dimensions mentioned in column 13, relate to two different devices.

Additionally, the Official Action states that the power density as comprising "1.2 W/cm³", but the recitation of claim 34 is "1.2 W/cm²".

Thus, as a first reason that the claims are not obvious, the Official Action has not asserted that the references teach that which is recited, i.e., "the power density of microwaves to be input being 1.2 W/cm² or more".

As a second reason that the claims are not obvious, the assertion that was made ("a plasma device carrying out plasma processing with a power density of microwaves to be input being 1.2 W/cm³ or more") is not sufficiently explained to verify that the assertion is correct.

Indeed, the assertion appears incorrect and KAMATA does not teach the recited power density of 1.2 W/cm^2 or more.

Even if KAMATA teaches a container having 500mm diameter and 200 mm high, and the use of microwave power of 800 watts, since an area of the container shall be " 1.962 cm^2 " in view of an equation of " $\text{a radius (25 cm)} \times \text{a radius (25 cm)} \times \pi (3.14) = 1.962 \text{ cm}^2$ ", the power density of the microwave shall be " 0.4 W/cm^2 " in view of the equation of " $800\text{W} \div 1.962 \text{ cm}^2 = 0.4 \text{ W/cm}^2$ ".

Here, it should be noted, since those values (power and dimensions) concern two different devices, a calculation based thereon might not provide a precise result.

Even assuming that " 1.2 W/cm^3 " is correct as contended by the Official Action, a volume of the chamber shall be " $39,250 \text{ cm}^3$ " in view of the equation of " $\text{a radius (25 cm)} \times \text{a radius (25 cm)} \times \pi (3.14) \times \text{high (20 cm)} = 39,250 \text{ cm}^3$ ", and thus the power density of the microwave shall be " 0.02 W/cm^3 " in view of the equation of " $800\text{W} \div 39,250 \text{ cm}^3 = 0.02 \text{ W/cm}^3$ ", which is still smaller than the above result asserted by the Official Action.

From the above, it is clear that the present rejection is faulty and should be withdrawn.

Only the present invention produces an unexpected advantageous result that a stable generation of plasma could be

achieved by setting the power density of the microwave to 1.2 W/cm² or more.

None of the cited references disclose this advantageous result. Further, none of the cited references teach a relationship between the power density of the microwave and the stable generation of plasma. In view of the above, the present invention is non-obvious over any of the cited reference or any combination of those references.

Further, the applied art does not teach or suggest the features of the new claims (taken from claim 35). The art does not teach or suggest the further recitations of "wherein said gas is substantially uniformly supplied through a second dielectric plate provided between said first dielectric plate and said electrode for holding the object to be processed" or "wherein a pressure of a first space between said first dielectric plate and said second dielectric plate is made higher than a pressure of a second space in which said electrode is located and which is surrounded by said second dielectric plate and a wall section of said container other than said second dielectric plate."

New claims 76-81 are based on claims 34 and 74-75 and are believed allowable for the same reasons as to claims 34 and 74-75.

Reconsideration and allowance of all the claims are therefore respectfully requested.

In view of the above, applicants believe the present application is in condition for allowance and an early indication of the same is respectfully requested.

Again, it is noted that Young & Thompson has taken over prosecution of this application. If the Examiner deems it beneficial to have an interview, it is requested that the undersigned attorney be contacted for the same. Should the necessary Power of Attorney not be made yet of record, the requested interview can be conducted from the attorney's copy of the file.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



Roland E. Long, Jr., Reg. No. 41,949
745 South 23rd Street
Arlington, VA 22202
Telephone (703) 521-2297
Telefax (703) 685-0573
(703) 979-4709

REL/lrs